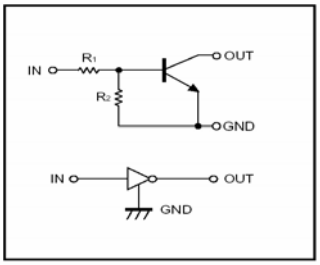
DTC143ZE/DTC143ZUA/DTC143ZCA
DTC143ZKA/DTC143ZSA

Digital Transistor(NPN)

Features

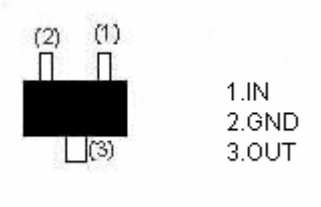
1. Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
2. The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of almost completely eliminating parasitic effects.
3. Only the on/off conditions need to be set for operation, making device design easy.

●Equivalent circuit



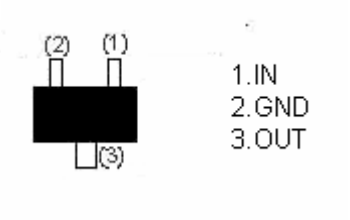
PIN CONNENCTIONS AND MARKING

DTC143ZE



SOT-523 Addreviated symbol: E23

DTC143ZUA



SOT-323 Addreviated symbol: E23

DTC143ZKA

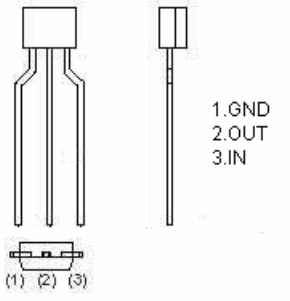
SOT-23-3L

Addreviated symbol: E23

DTC143ZCA

SOT-23 Addreviated symbol: E23

DTC143ZSA



TO-92S

DTC143ZE/DTC143ZUA/DTC143ZCA
DTC143ZKA/DTC143ZSA

Digital Transistor(NPN)

Absolute maximum ratings(Ta=25℃)

Parameter	Symbol	Limits (DTC143Z□)					Unit
		E	UA	CA	KA	SA	
Collector-base voltage	$V_{(BR)CBO}$	50					V
Collector-emitter voltage	$V_{(BR)CEO}$	50					V
Emitter-base voltage	$V_{(BR)EBO}$	5					V
Collector current	I_C	100					mA
Collector Power dissipation	P_C	150	200			300	mW
Junction temperature	Tj	150					℃
Storage temperature	Tstg	-55~150					℃

Electrical characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$			0.5	V	V_{CC}=5V ,I_O=100μA
	$V_{I(on)}$	1.3				V_O=0.3V ,I_O=5 mA
Output voltage	$V_{O(on)}$		0.1	0.3	V	I_O/I_I=5mA/0.25mA
Input current	I_I			1.8	mA	V_I=5V
Output current	$I_{O(off)}$			0.5	μA	V_{CC}=50V ,V_I=0
DC current gain	G_I	80				V_O=5V ,I_O=10mA
Input resistance	R_1	3.29	4.7	6.11	KΩ	
Resistance ratio	R_2/R_1	8	10	12		
Transition frequency	f_T		250		MHz	V_{CE}=10V ,I_E=-5mA,f=100MHz

Typical Characteristics

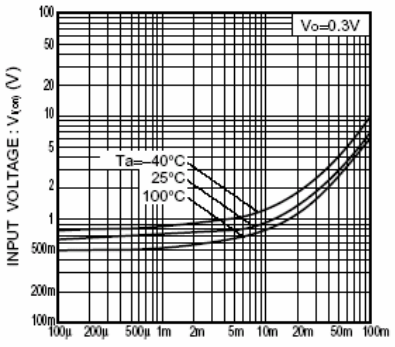


Fig.1 Input voltage vs. output current (ON characteristics)

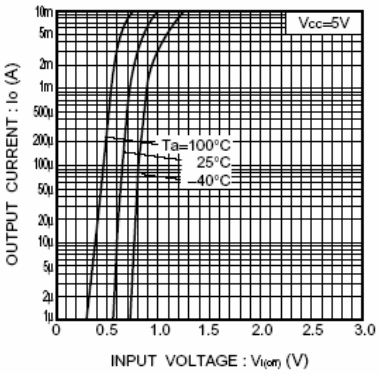


Fig.2 Output current vs. input voltage (OFF characteristics)

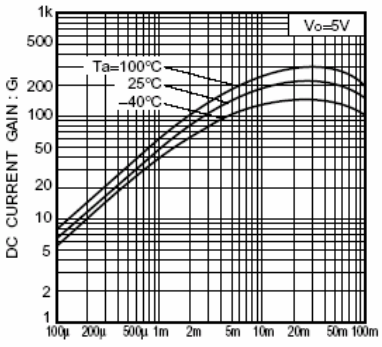


Fig.3 DC current gain vs. output current

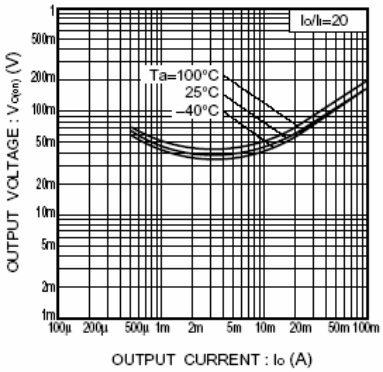


Fig.4 Output voltage vs. output current